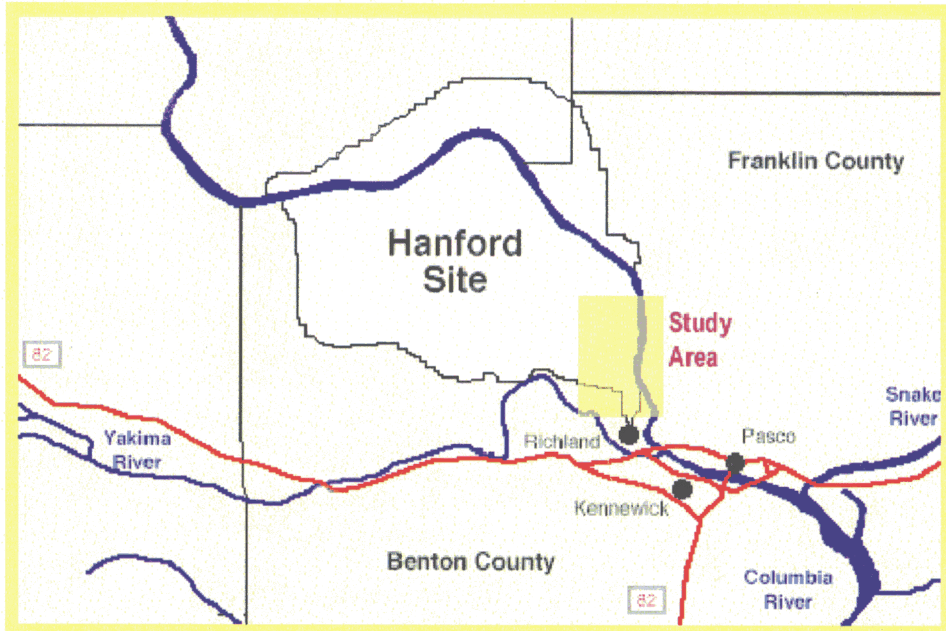
Final Report

State of Washington/Port of Benton
Hanford Investment Study



January 2000

Prepared by

HDR

And Associated Firms

For

Washington State Department of Transportation

Port of Benton

Legislative Transportation Committee

STATE OF WASHINGTON
PORT OF BENTON

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Executive Summary

The objective of the State of Washington/Port of Benton Hanford Investment Study was to evaluate whether development of lands and facilities transferred from the Hanford Reservation to the Port of Benton would be in the best interest of these jurisdictions. In addition to these recently transferred properties, the study also analyzed other Hanford properties that may be available for future transfer to the Port. These facilities are expected to be a valuable resource with the potential to generate investment in the area under certain economic conditions. Development on these lands is also expected to offset losses from the Department of Energy employment reductions at Hanford. Surrounding area assets were considered as complementary to developments at Hanford or for providing better opportunities for meeting industry requirements.

The primary focus of the study was to determine the probability of successfully developing and attracting business to the Hanford lands and facilities. Evaluation of the existing transportation networks and strategic transportation opportunities, along with development assets, were significant components of the study. An important aspect in determining the project's feasibility was defining the interaction between the transportation system, the available development parcels, and the corresponding industrial uses that could benefit from these components.

The process included an outreach program to interested private and public entities throughout each phase. The Committee was composed of approximately 46 individuals representing Regional Transportation Planning Organizations (RTPOs); economic development organizations; regional area ports; transportation and industry associations; trade associations; and public agencies.

This Final Report provides a summary of the study elements, findings, and conclusions based on three previous reports that contain supporting data, evaluations, and details. The study was comprised of three phases, briefly described below.

Phase I – Preliminary Feasibility. This initial phase identified property assets and candidate opportunities, defined feasibility criteria, and initially screened, rated, and ranked opportunities to determine which options and/or initiatives would be detailed in Phase II.

Phase II – Detailed Feasibility. The focus of this phase was on the market viability of individual or groups of industries and businesses.

Phase III – Coordinated Program Feasibility. Industries, economic development, and transportation initiatives found to be feasible in Phase II were evaluated as a total program in this phase. It included a coordinated industrial program evaluation, strategic transportation issues, conceptual site planning, and study findings.

The study integrated all the factors that would affect development opportunities. The primary study findings and conclusions are as follows:

Viable Development Opportunities

The industrial development component of the study evaluated business that could successfully be located on, and supported by Port of Benton/Hanford or surrounding area assets. In the evaluation of industrial development, external factors including employment and labor demographics, market proximity, and raw material needs were considered. The study team found:

- Eight industrial uses are viable opportunities for development on the Hanford properties that were recently transferred to the Port of Benton. The viability of these industries is tied to the presence of the region's: (1) highly educated and skilled labor force, (2) high technology businesses and facilities, (3) availability of areas for low compatibility use, and (4) specific ties to environmental and energy production. Six of the eight categories are opportunities specific to the Hanford lands and north Richland area. The other two categories could be accommodated in other areas of the Tri-Cities or within south central Washington as well as at Hanford.

- These eight industries are projected to create 10,000 new jobs in a phased development program over the next 20 years. Creation of these jobs would counter-balance the Department of Energy's forecast for reduction of 10,000 jobs on the Reservation over the next 20 years. Although the same number of taxpayers are anticipated within the region, newly created private facilities will raise assessed evaluations and lease hold taxes will be created in lieu of tax-free federal lands and operations.

- With the exception of certain niche service areas, there is little or no demand by businesses involved in transportation facilities or services in the Tri-Cities area, referred to as the "businesses of transportation."

Necessary Public and Private Investments

The coordinated development program shifted the focus of the study to evaluating the Port of Benton's financial, organizational, and economic development capability for continuing to acquire and develop surplus Hanford Reservation lands. Although the development program gave consideration to the need for major new transportation infrastructure, only modest industrial connections of rail and roadway were found necessary to support the program. Consequently, the coordinated program was narrowed to a local program of regional development opportunities that essentially builds on the existing Port of Benton industrial development program. The study team also found:

- Revenue from land sales and leases would unlikely be sufficient to offset infrastructure investments in the first 5 to 10 years of the program. The current market value of property in this area is below the cost of preparing land for development, but could increase as development proceeds. As a result, the Port will continue to face financial challenges in its attempt to invest in its existing industrial properties. However, the projected cost of infrastructure development for this program should be more than offset through increases in the tax base and local government tax revenues as businesses are added successfully.

- If the Port of Benton is unable to sustain the pace of direct public investment envisioned in the demand projections, the result could be a slowing down of the absorption rate or, in the worst-case scenario, the opportunities could be lost as businesses go elsewhere to find suitable facilities. Because indirect financial returns and public benefits that justify this development program do not directly accrue to the Port of Benton, a favorable alternate public entity for implementing this program would appear to be a local public joint venture.

Conceptual Site Planning

Site planning was addressed and continuously refined throughout the study. This included identifying property assets and constraints, estimating costs and relating transportation system infrastructure to development. This level of planning met study needs without continuing into a deliberate master planning effort. Other findings include:

- Development of these industrial uses can generally be accommodated on surplus lands previously acquired by the Port of Benton, along with approximately 400 acres of additional lands from the adjacent City of Richland's Horn Rapids Industrial Park. The City of Richland is capable of providing all of the industrial water, sewer, and power for the development program on existing Port of Benton lands and within its own industrial park. Acquiring an additional 1,020 acres of the Reservation lands would provide Low Compatibility Use sites. Infrastructure and utilities could be added to this parcel when development and investments are warranted.

- The transportation infrastructure on Hanford Reservation lands, including a mainline route across the Reservation is not, in itself, a principal driver of major manufacturing, commodity distribution or development. The Class 1 rail routes within the Tri-Cities area is not, in itself, a principal driver for development of a major "Intermodal Center."

- The current trackage connecting the Burlington Northern Santa Fe and Union Pacific mainlines at Kennewick to the Port of Benton Rail (former Reservation Rail) is fully adequate to support economic development on Port of Benton lands and selected surplus Hanford Reservation lands.

Long-range Commitments

The study identified regional strategic transportation assets where the Hanford Reservation facilities, as well as surrounding assets of south central Washington, could possibly be used at a future time. These assets include the regional rail and highway systems, and adjacent lands to those systems, that would be available for meeting possible future needs of Washington seaports. Additionally, uncertainties of long term demand for rail infrastructure and industrial development sites indicated a need to retain certain lands and facilities as a contingency.

- The concept of providing an inland support facility for Washington seaports was evaluated, and it was found that there is no current or projected immediate need (5 to 10 years) to provide inland handling for the ports of Seattle and Tacoma. However, inefficiencies in container handling or inland transportation systems may plague the ports further in planning the future.

- In anticipation of yet-to-evolve future needs, property in the southeast areas of the Reservation (along existing roadway and rail routes, totaling approximately 1,800 acres) could be acquired with modest incremental holding costs. This would include retention of the remaining 108-mile Reservation rail system. This property could provide the Port with long-term capacity to meet yet-to-evolve industrial needs with a “growth contingency” corridor.

Future Rail Considerations

The Port of Benton has an interest in supporting regional segments of capacity-driven, east-west rail routes. By ensuring future rail capacity for the seaports and overlapping use of those routes by regional freight and passengers, industrial development may also benefit within the Port of Benton and Tri-Cities region. For this reason, an evaluation of the current and future capacities, as well as capital costs, on each of the three east-west rail routes was conducted.

- Maintaining adequate east-west rail capacity on the state’s primary through-rail service routes is critical for assuring future growth of Washington’s two primary seaports. In addition, maintaining adequate capacity for the overlapping use of those routes by regional freight and passengers is critical to the state’s economy.

- By the year 2005, the capacity for east-west rail movements is expected to be severely constrained, which could indirectly affect port or port related operations. While staging some portions of development over a number of years to meet increments of capacity demand, it appears that an effective program for meeting long-term capacity requirements after 2005 would include:

  - Improving the signal system over Stampede Pass
  - Constructing a new Stampede Pass Tunnel
  - Restoring the Ellensburg-Lind Route and operating a one-way route system (Stevens Pass - Stampede Pass)

To meet future East-West rail capacity needs, route options must be preserved and private railroad efforts to make capital improvements encouraged and supported. Included should be preservation of the Ellensburg-Lind Route by maintaining the State Parks and Washington Sate Department of Transportation property transfer option for developing a route franchise for mainline rail at some future date.

Conclusions

The above study findings led to conclusions considered to be in the best interest of the Port of Benton and the State of Washington. These conclusions can be found Section 7.0 of this Final Report.

1. Introduction

The State of Washington and the Port of Benton authorized a feasibility study in June 1999 to evaluate development opportunities for lands and facilities that are candidates for transfer from the Hanford Reservation to the Port of Benton. The feasibility study was commissioned to address the economic viability, public interest, and community support for future investments on these properties. Transportation, industrial, and other economic development opportunities were assessed to determine if statewide transportation and economic needs could be met.

This Final Report provides a summary of the study elements, findings and conclusions based on three previous reports that contain supporting data, evaluations, and details. Study phases (I, II and III) and related reports are listed in Section 1.2. A list of reports and data generated throughout the study are provided in Appendix A.

1.1 Project Background

Redevelopment of the Federal Hanford Reservation lands, and their potential to generate local and regional economic benefits, has been under consideration by many jurisdictions and organizations for several years. Principal among the local jurisdictions has been the Port of Benton, which has received substantial amounts of Hanford lands and has incorporated portions of the Hanford assets into its long-range strategic plan. In 1998, 768 acres of administrative, supply, and maintenance facilities were transferred from the Department of Energy (DOE) to the Port of Benton. Included in the transfer were 16 of 124 miles of a federal rail system that crosses the Hanford Reservation. The remaining 108 miles of federal rail trackage, along with industrial development lands and facilities from the southeast corner of the Reservation, are being considered for future transfer. Site maps are located on pages 5 and 6.

The study was a joint effort of the Legislative Transportation Committee and the Port of Benton. The Washington State Department of Transportation administered the consulting services, with assistance in overseeing the study's progress and results from the Port of Benton, Legislative Transportation Committee, and the Washington State Department of Community, Trade and Economic Development.

1.2 Study Process

The primary focus of the study was to determine the probability of successfully developing and attracting business to the Hanford lands and facilities. Surrounding area assets were also considered in their role as being complementary to developments at Hanford or for providing better opportunities for meeting industry requirements. Evaluations of the existing transportation networks and strategic transportation opportunities, along with development assets, were significant components of the study. An important aspect in determining the project's feasibility was defining the interaction between the transportation system, the available development parcels, and the corresponding industrial uses that could benefit from these components.

The work was undertaken in three phases, briefly described below.

Phase I – Preliminary Feasibility. This initial phase identified property assets and candidate opportunities, defined feasibility criteria, and initially screened, rated, and ranked opportunities to determine which options and/or initiatives would be detailed in Phase II. The efforts under this phase were documented in the Phase I Report (HDR Engineering, Inc., August 1999).

Phase II – Detailed Feasibility. This phase evaluated economic development and "business of transportation" opportunities that were identified in Phase I. The focus was on the market viability of either singular, or groupings of industries and businesses. The analyses for this phase were documented in the Phase II Report (HDR Engineering, Inc., November 1999).

Phase III – Coordinated Program Feasibility. Industries, economic development, and transportation initiatives found to be feasible in Phase II were coordinated and evaluated as a total program. Included were a coordinated industrial program evaluation, strategic transportation issues, conceptual site planning, and study findings. This phase was documented in the Phase III Report (HDR Engineering, Inc., December 1999).

A fourth phase, Master Planning, was originally intended to be included in the study. A conceptual master plan was to be produced based on the development, infrastructure, and financial information produced in Phases I through III. However, the study results did not indicate a need for a master plan, and this phase was eliminated. In its place, a conceptual site plan, and a public infrastructure plan, were included in Phase III.

1.2.1 Oversight Panel

The study process, as well as the study's progress, results, and findings were regularly monitored by an Oversight Panel consisting of senior staff assigned from the Legislative Transportation Committee, Washington State Department of Transportation, Washington State Department of Community Trade and Economic Development, and the Port of Benton. Panel members attended Stakeholder meetings and also met separately with study consultants. Responsibilities of the Oversight Panel included advancing the study process to each phase and informally reviewing study findings.

1.2.2 Stakeholder Advisory Committee

The study also included an outreach program to interested private and public entities. The function of the Stakeholder Advisory Committee was to:

- Provide a forum for the project's stakeholders
- Keep the stakeholders apprised of the study's progress

- Develop consensus on key issues and options
- Provide information and feedback to the study team and Oversight Panel

The Committee was composed of approximately 46 individuals representing Regional Transportation Planning Organizations (RTPOs); economic development organizations; regional area ports; transportation and industry associations; trade associations; and public agencies. Appendix B provides a list of the individuals and organizations that participated in the Stakeholder Advisory Committee.

1.2.3 Special Industry Focus Group

An important component of the study was obtaining input from persons knowledgeable of the business of transportation and port industries. Review and comment on transportation candidates and strategic transportation issues was regularly provided by the Stakeholder Advisory Committee and individual transportation business representatives. In addition, a Transportation Industry Focus Group consisting of a cross-section of representatives provided specialized input and discussion during a half-day workshop. A list of those participating can be found in Appendix B.

2. Conceptual Site Planning

Site planning was addressed and continuously refined in Phases I, II, and III. This included identifying property assets and constraints, estimating costs and relating transportation system infrastructure to development. This level of planning met study needs without continuing into a deliberate master planning effort. Conceptual site planning was divided into four components:

1. Characterization of Site Assets
2. Availability of Water
3. Adequacy of the Highway Network
4. Intermodal Center Siting

These components are discussed, below.

2.1 Characterization of Site Assets

The large pool of assets available within the Reservation had to be considered in the initial step of the study. At the start of Phase I, assets were generally defined as facilities of value within the 560-square-mile area of the Reservation; sites in north Richland that have already been transferred; transportation infrastructure on the Reservation and in surrounding areas; and regional assets such as those found at the ports of Pasco, Kennewick, and Moses Lake.

As the study progressed, the areas being evaluated were narrowed. The study findings began to indicate a lack of demand for either the Reservation's extensive rail system or its potential for connecting surrounding area assets. A primary area was then designated in the extreme southeast corner of the Reservation and in north Richland, where lands and facilities had already been transferred to the Port of Benton. The assets used in the final conceptual site planning included:

- 1,081 gross acres of Port of Benton lands in the vicinity of north Richland (including 16 miles of former Hanford Reservation Rail)
- 2,820 gross acres of current Reservation lands within the primary study area
- The remaining 108 miles of the Hanford Reservation Rail
- 400 gross acres of the City of Richland's Horn Rapids Industrial Park

Final siting maps depicting the primary study area, principal industrial lands, and rail and highway assets used in the conceptual site planning are provided on the following pages.

2.2 Availability of Water

Siting new developments within the City of Richland limits would provide a reliable supply of water to support the forecasted growth over the next 20 years. Currently, water is provided through a distribution system that can be expanded as development progresses. According to the City of Richland's Comprehensive Plan, the City has water rights for this area to serve approximately 50 million gallons per day (mgd). Current use is about 18 to 20 mgd with peak usage near 40 mgd during the summer. Estimated demand for meeting the forecasted industrial growth on Port of Benton and City of Richland lands in north Richland is approximately 3 to 5 mgd with full buildout at 20 years. This estimate is based on the fact that none of the feasible industry was found to be a large water user.

One concern is that the City's Horn Rapids Industrial Park development is being marketed for heavy industry that could attract a large water user. The City is pursuing additional water rights with three other south central Washington cities, referred to as the Quad City area. This effort would increase water availability beyond the 50 mgd that is currently authorized. If successful, this will enable these cities to bank a large water right and allow for a large water user in the Quad City area. As development proceeds, it would be prudent for the Port of Benton to closely monitor water availability.

2.3 Adequacy of the Highway Network

In general, eastern Washington has a well maintained, congestion-free transportation system. The transportation network surrounding the Port of Benton offers ample highway capacity and competitively priced railroad, trucking, and barge shipping options.

Plate 1. Hanford Reservation and Study Area

Plate 2. Coordinated Program Site Development Potential

The current, combined population of Benton and Franklin counties is approximately 185,000. The Washington State Office of Financial Management projects growth of about 34 percent over the next 20 years, resulting in a combined population of about 247,000 by the year 2020. This population increase will generate a corresponding growth in traffic volume on state highways and roadways serving the Port of Benton, Richland, and the entire Tri-Cities area. Average daily traffic volumes (ADTV) for Interstates 82 and 182, and State Routes 12, 224, 240, and 395 currently vary from 5,000 to 30,000 or more, depending on which section of which highway is being observed. In accordance with projected traffic growth patterns, ADTV's for some of these same state highways may increase by as much as 100 percent. While these projections are clearly significant, most of the existing highway network has capacity to accommodate this rate of growth.
The Tri-Cities area has a competitive advantage in the highway network. No new highway improvements are needed to establish or maintain any of the industrial development or business of transportation proposals.

2.4 Intermodal Center Siting

The evaluation of transportation assets on the Hanford Reservation and within the Tri-Cities area included the prospect of an "Intermodal Center" or "Inland Port" as a potential "business of transportation" and as a strategic issue. To properly complete that evaluation and for general application in other parts of the state, the Oversight Panel requested that a special criterion be produced for identifying the drivers that influence such developments. Numerous regions, sub-regions, and cities throughout the country often become highly motivated to develop as centers of commerce and growth based upon transportation assets. It was understood that not all locales could actually become such centers of transportation and commerce, even with aggressive development initiatives. But little had been developed for establishing criteria to evaluate feasibility of "Inland Ports" or "Intermodal Centers."

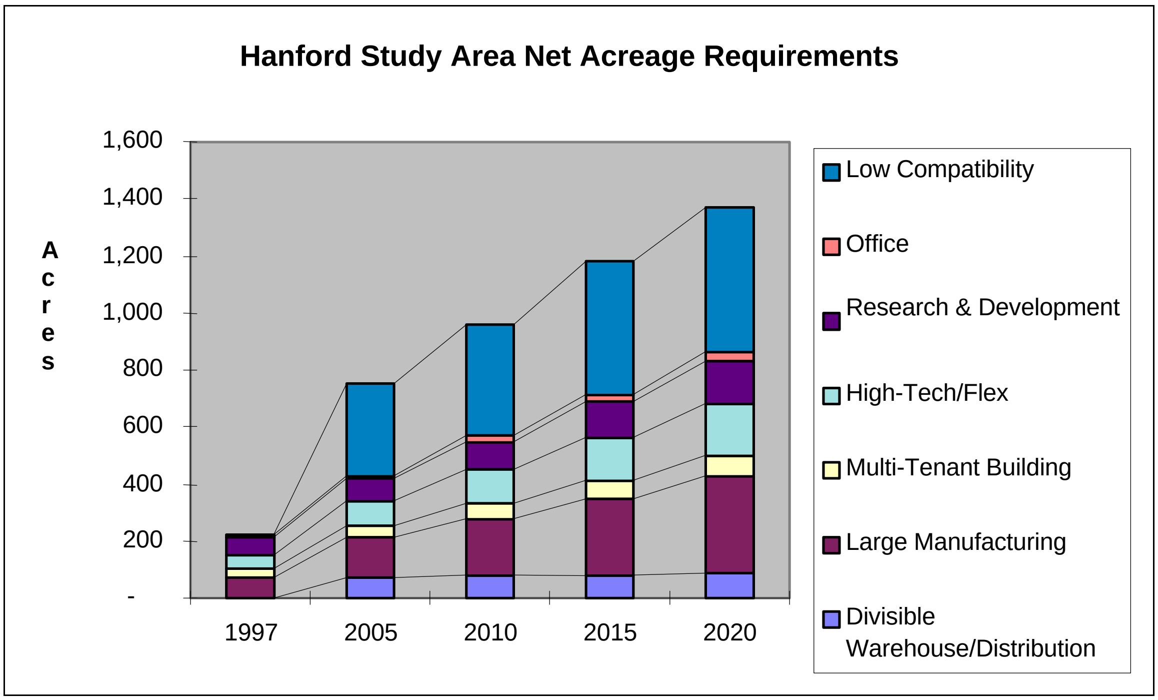
During Phase II, research was completed and a technical memorandum prepared for use in judging the potential for this special type of transportation opportunity. Surveys of facilities nationwide such as Alliance Park, Texas, Greater Columbus Inland Port and Port of Shelby, Montana, were used to identify market drivers and requirements that have led to the development and sustainability of inland transfer and transport facilities. Drivers were identified, dominated by population and distribution demands, and used in the evaluation. No indications were found that rail infrastructure in the Tri-Cities area (including two Class 1 railroad mainlines) is, in itself, a principal driver for development of a major "Intermodal Center." Nor is it a principal driver of major manufacturing, commodity distribution, or development as is found in population-driven sites.

2.5 Study Findings: Conceptual Site Planning

Requirements of the industrial development categories, with the exception of the Low Compatibility Uses, can be accommodated on lands already transferred to the Port of Benton, along with approximately 400 acres of additional lands from the adjacent City of Richland's Horn Rapids Industrial Park.

While the existing Energy Northwest lands and facilities are suitable for many of the industrial opportunities, they are less competitive than other study area sites given the frequent preference for construction on "greenfields" sites. The requirements for development included approximately 1,280 gross acres of development sites that could be met on existing Port of Benton and City of Richland lands. Accordingly, this development program would not require acquiring additional lands north of the current Horn Rapids Rail Center properties for other than the uses in the Low Compatibility Uses category.

Figure 1. Acreage Requirements by Business Category



Source: Property Counselors & Real Estate Economics, 1999

The City of Richland is capable of providing all of the industrial water, sewer, and power for the development program on existing Port of Benton lands and within its own industrial park.

An important advantage of siting nearly the entire program within the City of Richland is that the City can provide the necessary utilities for industrial development. Development sited beyond the City's urban growth boundary north of the Horn Rapids centers and well into the study area on the Hanford Reservation would have to face the uncertainties of water availability.

The Low Compatibility Uses category requires substantial acreage and can be accommodated within the extreme southeast corner of the Reservation designated by the Department of Energy for future industrial use. These industries will provide their own infrastructure investments.

A 1,020-acre site is required for this category and could be accommodated at a more remote Hanford Reservation site within the study boundaries. A satisfactory site with reasonable access to and from road and rail connections was found in a segment of the training academy. It is believed that a specific demand for such a remote site will encourage investment for all necessary infrastructure by the private or public developer.

Space to accommodate a corridor for an industrial development and business of transportation "growth contingency" area can be provided on Hanford Reservation lands within the primary study area adjacent to rail and roadway access routes.

A segment of development lands that presents little risk and only modest incremental holding costs for meeting a need for "growth contingency" is represented by an 1,800-acre corridor along current rail and roadway access in the extreme southeast of the Reservation immediately north of the Horn Rapids Rail Center (see conceptual siting map). Industrial plant use of this site for long term, yet-to-evolve demands may require new water rights, which could become a factor in risk and holding costs.

The presence of the transportation infrastructure available on Hanford Reservation lands including development of a mainline route across the Reservation is not, in itself, a principal driver of major manufacturing, commodity distribution or development. The current trackage connecting the Burlington Northern Santa Fe and Union Pacific mainlines at Kennewick to the Port of Benton Rail (former Reservation Rail) is fully adequate to support economic development on Port of Benton lands and selected surplus Hanford Reservation lands.

The passage of a rail mainline directly through an industrial or commercial development site has not been found to be necessary for attracting development. For industries needing all but the highest volumes of rail shipment, a reasonably convenient switching access to Class 1 rail systems is adequate. The existing switching access to two Class 1 rail systems presents a significant business advantage for industries needing rail connections.

The presence of rail infrastructure in the Tri-Cities area, to include two Class 1 railroad mainlines, is not, in itself, a principal driver for development of a major "Intermodal Center."

The fact that Class 1 rail systems pass directly through the Tri-Cities area has not been found to be a driver for attracting the development of a major regional intermodal facility. Locations of such centers are far more likely to be influenced by major population centers.

A "growth contingency" rail corridor can be provided on Hanford Reservation lands by retaining the 108-mile Reservation rail system within and beyond the primary study area for additional yet-to-evolve demands for rail routes and transportation services.

Retention of this rail asset presents little risk and only modest incremental holding costs for meeting a need for "growth contingency." This could include strategic rail uses not currently justified, as well as niche markets for support of industry and availability for Department of Energy uses not yet established.

3. Industrial Development

The industrial development component of the study evaluated business that could successfully be located on, and supported by Port of Benton/ Hanford assets. In the evaluation of industrial development, external factors including employment and labor demographics, market proximity, and raw material needs were considered. A second category of development termed "business of transportation" was also evaluated in this study. Both of these categories analyzed Hanford assets and development possibilities. However, because the number of candidates, market drivers, and feasibility criteria were distinct, the industrial development and business of transportation candidates were evaluated separately.

3.1 Preliminary Feasibility

The study team initially identified 87 business candidates that could possibly use the Port of Benton/Hanford assets. Some of the general category candidates for industrial development included: agriculture, mining, lumber and wood, metals, manufacturing, fabrication, utilities, engineering, and research management. Within each of these categories, specific industry types were evaluated. For example, communication is the general category while telecommunication, tracking, and navigation systems are more specific and fall under this category. At different times during the feasibility analysis, both the general and specific development opportunities were evaluated.

Because of the enormity of the industrial development opportunities, these initial screenings proceeded differently from the business of transportation. The initial screening for industrial development used a three-step process consisting of:

1. Capability analysis
2. Preferred industry analysis
3. Competitive analysis

The **capability analysis** was a comparison of Hanford and surrounding area assets with industry requirements. Components considered in the analysis were based upon the feasibility criteria as needs for land availability, utilities, transportation, market proximity, raw materials, business climate, and quality of life. Eight development opportunities were removed from status as a high priority for detailed evaluation including:

- Agriculture
- Fish Raising
- Food and Kindred Products
- Primary Metals (Aluminum Smelter)
- Refinery
- Structural Concrete
- Semiconductors and Software

The **preferred industry analysis** consisted of rating industries for the economic performance of factors such as industry size, growth outlook, wage levels, and investment and return. Industry groups at the general level were evaluated, since analysis at the level of individual candidates would require more data then readily available. This analysis eliminated the following from status as high priority for detailed evaluation: agriculture, chemicals, food and kindred products, and primary metals smelter.

The **competitive analysis** identified candidate businesses that would find the area and sites suitable for their needs. At this point some of the more specific business opportunities were re-grouped into larger categories. This was done to prevent the field of potential opportunities from becoming too narrow. The competitive analysis was based on the following factors: labor force education, existing business concentrations, unique specialized facilities and equipment, cost of living, and transportation opportunities. This third step also grouped businesses based on their competitive strengths.

At the end of the initial screening phase, the 87 development categories were narrowed to eight. These eight categories were further examined in the detailed feasibility stage. The categories are briefly described below.

Energy and Energy Systems
This category includes research and development (R&D) production, distribution, and a variety of services related to existing and emerging energy sources. Specific subcategories were identified as energy R&D and testing, laboratory instruments, electric, and other energy sources and potential resource recovery uses.

Environmental
The environmental category includes firms that provide environmental services such as hazardous and solid waste management, R&D, consulting and engineering, and remediation and environmental analysis. In addition, companies that manufacture equipment for the analysis of air, gas, soil, and water are also included. Specific

subcategories have been identified as: pollution control and prevention equipment, air monitoring analysis equipment, water supply systems, waste remediation (solid and liquid), and refuse and sanitation systems.

Advanced Materials

The advanced materials category includes non-ferrous metals, plastics-based components, and metal treatment. Specific subcategories were identified as specialty plastics, aluminum products, other non-ferrous metal products (titanium), composites, and coatings and treatments.

Information and Communications

The information and communications subcategory includes a variety of manufacturing and services sectors that provide for the creation, storage, and distribution of information. Specific subcategories were identified as computer and communications equipment, electronics components, communication services and systems, and data systems and information retrieval.

Wholesale Distribution

The wholesale distribution category includes regional and local distribution centers within the surrounding trade area and mail order service. Specific subcategories were identified as regional distribution centers to retailers, local warehousing services, and mail order and direct sales.

Miscellaneous Manufacturing

The miscellaneous manufacturing category contains a variety of manufacturing sectors, with the ability to relocate or expand from the central Puget Sound or other metropolitan areas in the region. Many manufacturers are considering alternative locations because of limited land availability around their existing sites. In addition, land is expensive in major urban areas, and either labor rates, or the cost of living are high for their employees. It is within the State of Washington’s interest that these businesses relocate or expand elsewhere in the state, rather than relocate outside the state. The sectors that are the most promising candidates are the ones with the greatest land requirements or are most sensitive to labor costs. The following specific subcategories were identified: mobile homes and/or building components, publishing and printing, structural metal equipment, conveying equipment, gears and components, and sporting equipment.

Transportation Equipment Manufacturing

The transportation equipment manufacturing category was focused on the manufacturing of rail equipment although specific subcategories were identified to include truck and travel trailers, boat manufacturing, and space vehicle parts and equipment.

Low Compatibility Uses

Low compatibility uses include a broad array of uses that were perceived to be incompatible with many traditional uses. These uses share a requirement for large sites to provide adequate visual and spatial buffers from surrounding uses. Five specific subcategories of manufacturing were identified: sand and gravel, fertilizers and pesticides, explosives, arms and ammunition, and landfill. While storage of solid waste in a landfill elicited objections from some members of the Stakeholder Advisory Committee, the idea of resource recovery was considered an acceptable use. Resource recovery is considered under the category of energy and energy services.

3.2 Detailed Feasibility

The detailed feasibility portion of the study was based on an analysis of demand and the Hanford study area's competitive position. This analysis was the focus of Phase II of this study. A comprehensive investigation of several key competitive factors and present projections of potential industrial development requirements were completed. Each of the eight categories were analyzed against the following factors:

- Existing economic base and workforce factors
- Real estate market conditions
- Projections of future employment
- Projected land and facility requirements
- Public investment requirements

The detailed feasibility analysis of all eight industrial candidates revealed that the required land area, labor, and quality of life are available, and their cost to industry was acceptable. In addition, there were few raw materials required and markets were accessible at reasonable transportation costs. The communications infrastructure will soon be available and other utilities are mostly in place for supporting all business types.

The only category not sited in north Richland, Low Compatibility Uses, will have utilities available in the form of onsite wells and septic systems, assuming water rights and availability do not become an issue on the Reservation.

3.3 Study Findings: Industrial Development

The primary focus of the industrial development study was the evaluation of business categories that could successfully be located on Port of Benton/Hanford lands. The findings of the industrial development component of the study are summarized below.

Six industrial uses were found to be viable development opportunities in the Hanford/Richland area due to the presence of high technology businesses and laboratories, the highly educated and skilled workforce, availability of large siting areas for low compatibility industry use and specific ties to environmental and energy production. These categories are:

- *Energy/Energy Systems*
- *Environmental*
- *Advanced Materials*
- *Information/Communications*
- *Transportation Equipment Manufacturing*

- *Low Compatibility Uses*

Two other industrial development categories advanced in Phase II are not tied to the Hanford/Richland area, and could be sited elsewhere in the Tri-Cities area. They include:

- *Wholesale/Distribution*
- *Miscellaneous Manufacturing*

Development of these industrial use categories was evaluated for compatibility, affordability, and feasibility, as individual development projects were brought together in a coordinated 20-year effort.

The study team projected that any new industrial business will provide private investment for developing the entire facility within individual site boundaries. Alternatively, the Port of Benton will have to incrementally consider the practicality of additional investments, beyond basic infrastructure to the property line, on a project-by-project basis.

While minimizing the public investment required for property development is a common objective of any public site developer, the marketplace may require that additional incentives be provided to attract industry. Fortunately, the coordinated program does not require large advance public investments, thereby allowing every development decision to be considered on its individual merits.

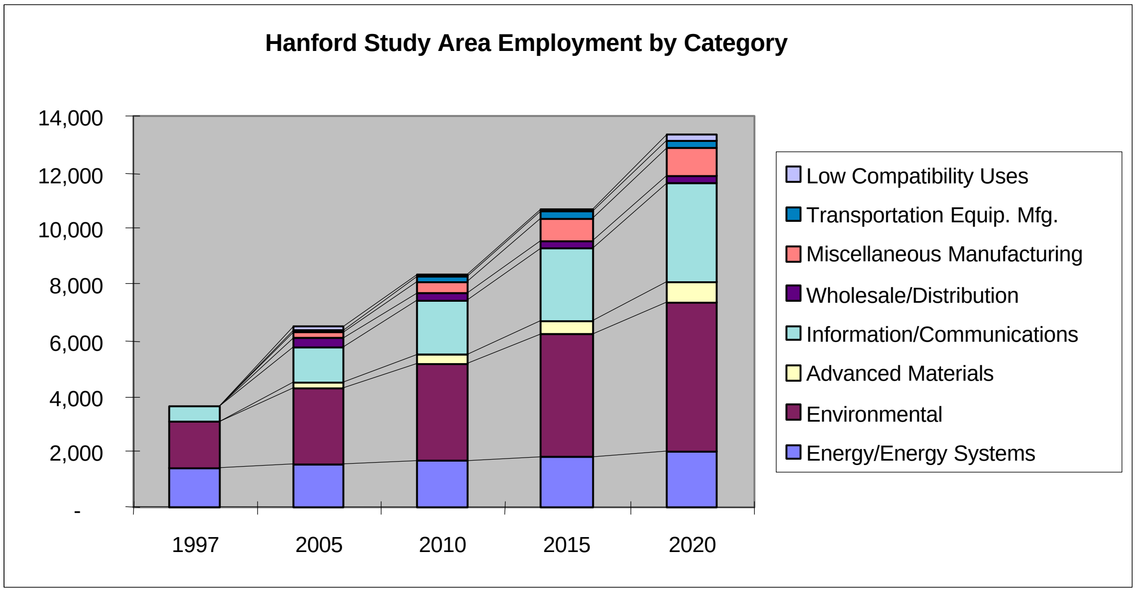
Property for industrial development is likely to be purchased from the Port of Benton by new industrial users or be leased on a long-term basis by those users.

The study found that most developers would wish to buy a site for their own use. There is a mandatory waiting period on acquired lands from the Department of Energy (DOE) before allowing a sale to proceed (10 years). However, a steady rate of development over a 20-year period and the Port's capability of executing long term land leases (50 or more years) will likely support industry needs for ownership or overcome objections to investing in development on leased land.

Industrial growth in the study area is projected to occur in a phased development program over the next 20 years and create 10,000 new jobs.

The creation of 10,000 new jobs is anticipated to be spread over a 20-year period of growth that is expected to be manageable by the Port and other local governments. However, a counter-balancing of population effects comes from a parallel forecast of the DOE for reduction of 10,000 jobs on the Reservation over the next 20 years.

Figure 2. Employment Projections by Business Category



Source: Property Counselors & Real Estate Economics, 1999

4. Coordinated Program Analysis

Phase I and II study feasibility determinations focused on alternatives from the standpoint of business seeking a development location or potential tenant. The coordinated program subsequently integrated those Phase I and II factors that were found to attract a firm to the Tri-Cities area with a feasibility perspective of the public developer. The coordinated development program then shifted the focus to evaluating the Port of Benton's financial, organizational, and economic development capability for continuing to acquire and develop surplus Hanford Reservation lands. Although the development program gave consideration to the need for major new transportation infrastructure, only modest industrial connections of rail and roadway were found necessary to support the program. Consequently, the coordinated program was narrowed to a local program of regional development opportunities that essentially builds on the existing Port of Benton industrial development program.

The coordinated program evaluation used all eight industrial development candidates. The program also integrated the only transportation candidate found to be viable: Rail Equipment Repair and Rehabilitation Center. The evaluation first used conceptual site planning to determine growth patterns and their impact on the pace and timing of public investments in the area. Potential patterns and timing of development were based on two key conclusions:

- That development can initially occur on property that already includes most necessary services such as road improvements and utilities. As development progresses, infrastructure investments will be extended to areas that currently do not have the requisite infrastructure and public services.

- That the City of Richland has the capability to provide the utility services implied by this coordinated program within the City's current capacity for delivering water and wastewater services.

The evaluation confirmed the need to provide public services and the necessary infrastructure to the properties and preparation of the land for subsequent private development. The total public development needed during each of four 5-year growth periods ranges from $3.5 million to $5 million, with a total estimated public investment of $16 million over 20 years. This represents a reasonable level of public investment considering the private investment potential of $800 million on the properties and attaining employment projections of 10,000 new jobs over the 20-year planning horizon. The table below illustrates the financial leveraging. As further examples of positive economic impact, it was estimated that over $4 billion in gross receipts, including over $900 million in payrolls, could be produced by these businesses over 20 years.

Table 1. Ratio of Public and Private Investments

Public Investment Compared to Private Investment (cumulative) 2000-2020 (constant dollars)				
	2005	**2010**	**2015**	**2020**
Total Private Investment	$242.8 mil	$405.4 mil	$591.2 mil	$789.8 mil
Total Public Investment	$3.6 mil	$6.3 mil	$10.8 mil	$15.8 mil
Every public dollar generates	$68	$65	$55	$50

Source: Berk and Associates, 1999

The total level of investment is also an important indicator of the economic development potential of the coordinated program. Investments will roll into the local tax base in two important ways: (1) the assessed value of real and personal property will increase, possibly leading to increased property tax revenues; and (2) a substantial portion of the investments will be subject to sales tax.

But even with substantial public benefits accruing from development, the study found that return on direct investments by the Port of Benton would likely be negative. This results from the relatively high costs of development as compared to current property values that will remain until property values increase because of the momentum of growth. Costs of development were found to be relatively lower in early years because of availability of existing facilities and infrastructure making it even more difficult to finally reach a status of compenable investment. Although a public port district like the Port of Benton has a clear economic development mission and could justify their investments with ample indirect returns to public budgets, those indirect returns do not accrue to the Port. Due to this factor, it appears to be in the best interest of the Port to pursue a local government joint venture for implementing this program.

4.1 Study Findings: Coordinated Program

A key aspect of the study was the magnitude of public improvements required, the direct public investments necessary, and the return on those investments either in direct or indirect public financial returns or as other public benefits. The findings of the coordinated development are summarized below.

Direct public investment needs for a coordinated Industrial Development program include roadway improvements to Stevens Way; basic site development; grid roadways; rail spurs; communications links and extension of utilities from the City of Richland.

The coordinated program of site development requires only what are considered typical industrial infrastructure elements. Investments are relatively modest in that they do not include new major transportation system improvements and/or expansions. However, the requirement for bringing Stevens Way up to City standards within the first two years of the program represents a difficult and immediate challenge for the Port. This estimated $2.9 million expense must be completed in advance as a common element of development well ahead of revenues being produced from individual sites.

Other public investment requirements include holding-costs for existing buildings, maintenance of rail trackage, rail bridges and other existing improvements, marketing and development planning, and the cash-flow necessary to complete new site developments.

As part of implementing this coordinated development program, the Port must first successfully integrate the newly acquired rail connection and the Horn Rapids Rail Center facility (former Department of Energy 1100 area) into their capital and operating budgets. Relatively high costs of maintenance on both the rail system and its bridges, and the buildings on the site will remain a financial challenge to the Port until revenues compensate for the investments.

Operating costs to maintain transportation access as new development is added onto rail and roadway systems will also need to be covered by matching revenues. Increasing overhead costs for conducting intensive marketing and development planning to support the development program will be an added operating burden on the Port. The Port will need to finance the site infrastructure as it is developed prior to realizing returns.

It is unlikely that revenue from land sales and leases will be sufficient to offset infrastructure investments in the first 5 to 10 years of the program. The current market value of property in this area is below the cost of preparing land for development but could increase as development proceeds. As a result, the Port will continue to face financial challenges in its attempt to invest in its existing industrial properties.

Prototypical development values computed for Phase III confirm that financial returns may not cover the cost of property development even with zero land costs. Although adequate indirect financial returns and public benefits can justify proceeding with land development, the Port will be challenged by what will likely be a subsidized element within their financial programs.

Infrastructure funding may be partially mitigated by development in a south-to-north orientation by first using available properties with developed infrastructure in the Richland Industrial Center, the Business and Technology Center, and parts of the City's Horn Rapids Industrial Park. The gap between the incremental cost to get property ready for development and the current property value is smaller in the near term.

Public investment cost estimates developed for Phase III show the early value of using some existing buildings and site infrastructure found at the two current Port development areas, the developed portion of the 1100 area, and on some of the City's Horn Rapids Industrial Park. Relatively undeveloped portions of the 1100 area and City's development area have higher development costs that could be avoided in early years.

It is projected that the cost of infrastructure development for this program should be more than offset through increases in the tax base and local government tax revenues as businesses are added successfully.

There will be indirect financial returns and public benefits to constitute a legitimate return on the public's investment for this program. However, the Port of Benton has a long-range objective to operate as a viable public business by producing net incomes and reducing its reliance on taxes.

The offsets for cost of infrastructure development may appear to be partially cancelled by reductions in jobs at Hanford (forecasted to be 10,000 over 20 years). To the extent that jobs are simply moving from public facilities to private facilities, there would appear to be no net gain in local payroll, and thus, no change in local sales tax collections. But, since the lost jobs would not be offset in the absence of the coordinated program, all 10,000 new jobs should be considered as a net benefit. Further, property and utility tax revenues would likely experience positive impacts, as more activity is located in facilities that are taxable.

While it appears that the program will produce replacement jobs for those forecasted to be lost at Hanford, the same numbers of taxpayers will be the result. However, the replacement of those jobs represents a relative increase over payroll and sales tax at a 10,000-job-loss-level. Additionally, elimination of new population impacts normally associated with development and newly created taxable private facilities will be positive.

The basis for this analysis assumes that the Port of Benton will fulfill the role of land developer, and as such, will only be responsible for preparing land for others to develop. Because of market conditions and the likelihood that not all prospective tenants will be interested in building their own facilities, the Port may need to consider taking a more active development role in some projects. This may be necessary to take advantage of the opportunities presented in the demand projections.

Public development experience throughout the state would indicate that attracting new business may require incentives and increased public financing of development. Meeting additional onsite requirements may be expected for even small amounts of growth. This does not, however, present an undue risk to the Port in embarking upon this type of a program in that "go", "no-go" decisions to proceed can be made on a project-by-project basis.

The transfer of new property from DOE to the Port of Benton meets the feasibility threshold, as there are only modest incremental holding-costs and the property provides the Port with long-term capacity to meet yet-to-evolve industrial needs with a "growth contingency" corridor and immediately provides a new marketing opportunity for Low Compatibility Uses.

The 20-year coordinated program utilizes sites, except for Low Compatibility Uses, on Port lands already transferred from the Reservation or on adjacent City of Richland industrial lands. Acquiring at least an additional 1,020 acres of remote lands within the study area along with rail and roadway access will be necessary to meet needs for the Low Compatibility Uses. Except for maintaining access to and from the sites, there appears to be no holding costs for the barren land. For other lands found to be justified within the study area for long term retention as a "growth contingency," the same would apply.

The coordinated development program passes the feasibility threshold, within the context of the Port of Benton's long-range planning and economic development objectives. These qualifications are primarily met because most of the future investment decisions can be made incrementally and evaluated based on the direct financial implications of each potential project.

The required investments by the Port may not produce direct financial returns. This factor needs to become part of the Port's overall long range financial planning to determine means to accomplish the program. However, acquiring new lands does not appear to present an undue risk to the Port in embarking upon this type of a program, as decisions to invest can be made on a project-by-project basis.

If the Port of Benton is unable to sustain the pace of direct public investment envisioned in the demand projections, the result could be a slowing down of the absorption rate or, in the worst-case scenario, the opportunities could be lost as businesses go elsewhere to find suitable facilities. Because indirect financial returns and public benefits that justify this development program do not directly accrue to the Port of Benton, a favorable alternate public entity for implementing this program would appear to be a local public joint venture; a partnership of governments.

Study results indicate that the development program will likely require public investments that may not produce a direct financial return. Although most development increments are anticipated to break-even, the bigger picture of holding-costs on existing properties, development cash flow requirements, planning and marketing costs, and increasing operating costs as development occurs, all represent financial challenges to a relatively small public port district. Added to this list must be the uncertainties of additional public investment needed to attract some of the candidate businesses. But the coordinated program is believed to be feasible based upon the indirect financial returns such as taxes and other public benefits that include jobs and population stability. A local public joint venture, that would include a public entity that could benefit from such an arrangement, might provide an appropriate means to better meet the required financial investments.

Table 2. Jobs Generated per Investment Dollars

Jobs Generated per $1M Public Investment (constant dollars)				
	2005	**2010**	**2015**	**2020**
Employment	2,684	4,692	6,943	9,426
Total Public Investment	$3.6 mil	$6.3 mil	$10.8 mil	$15.8 mil
Jobs per $1M Public Investment	751	747	645	595

Source: Berk and Associates, 1999

5. Business of Transportation

The "business of transportation" is a term used in this study to define business development categories that are related to the transportation industry. More specifically, this term is applied to a business that would provide a service to transportation industries such as the railroads, barge companies, and motor carriers. These companies and carriers themselves would also be businesses of transportation. An example of a "business of transportation" use is the storage and repair of railcars, where as the manufacture of railcars would be considered an industrial development opportunity.

Business of transportation candidates were evaluated separately from the industrial development opportunities. This separation was done for two reasons. First, the location of the Hanford properties in relation to Burlington Northern Santa Fe and Union Pacific mainlines, as well as the 124-mile trackage on the reservation, was viewed as a primary asset. Secondly, the number of candidates, market drivers, and feasibility criteria were distinct enough to warrant a separate evaluation.

5.1 Preliminary Feasibility

In identifying business of transportation candidates, the study team found that the range of opportunities was limited and an exhaustive search was unnecessary. Several concepts for using the Hanford transportation assets were already established as focus items in the scope of the study. These included:

- Intermodal Hub
- East-West Rail Route Improvements
- National Strategic Freight Corridor

- Inland Port Facility for Washington Seaports
- Moses Lake Asset Integration

Other candidates included:
- Barge Operations
- Automobile Distribution
- Commodity Consolidation
- Rail Equipment Repair
- Air Operations Center
- Air Freight Distribution
- Regional Freight Corridor
- Rail Services Center
- Trucking Service Center
- Freight Tracking Center
- Dispatch and Control Center
- Rail Equipment/Container Storage, Staging and Dispatch Center

Initial screening of the candidates consisted principally of eliminating fringe concepts and those that duplicated existing transportation capacity or specifically competed against existing business. For example, the development of sites for a Port of Benton Cargo Barge operation was eliminated as unnecessary because of the presence of these services at the Ports of Pasco and Kennewick. Two of the remaining candidates East-West Rail Route Improvements and Inland Operational Support of Washington Seaports, were rated and ranked but determined to have strategic statewide implications and were evaluated separately during Phases II and III under the heading "Strategic Transportation Issues" (Section 6.0). The remaining seven businesses of transportation opportunities were advanced into more detailed feasibility screening. These business of transportation candidates are described below.

Eastern Washington Export Consolidation and Shipment Center

This business type was defined as a centralized location for receiving and handling intermodal transfers of containerized agricultural products for rail movement to the ports of Seattle and Tacoma.

Domestic Automobile Distribution Center

The distribution center concept would be a centralized, consolidated regional domestic automobile center (U.S. manufactured), which would receive automobiles by rail. It would include storage, component additions, staging, and intermodal transfer to trucks for distribution throughout the Pacific Northwest network.

Rail Equipment Repair and Rehabilitation Center

This business type was defined as a center that would provide cost-effective repair, rehabilitation, and overhaul of locomotives and rail cars. It would contain an unlimited storage and staging facility for railroad equipment undergoing those services.

Rail Equipment/Empty Container Center

This candidate use would provide a satellite location for storing, staging, and dispatching railroad double stack rail cars and empty containers destined for the Ports of Seattle and Tacoma.

Rail Servicing Center and/or National Strategic Trade Corridor

These two candidate uses were combined for evaluation as they provide similar services and have similar requirements. A rail servicing center concept would be a facility for providing rail operations support services such as fueling, inspection, maintenance, repair, crew rest, crew changes, dispatch arrival/departure trackage, and temporary train storage and staging.

Transportation Equipment Control and Tracking Center

This center would provide transportation equipment location and control services for a wide spectrum of transportation modes to include trucking, rail, air, barge, and ocean carrier.

5.2 Detailed Feasibility

The focus of the detailed feasibility evaluation was on the forecasted demand for services, which is the bottom line of transportation business feasibility. This analysis was the concentration of Phase II of this study. Each of the seven candidates was tested against feasibility criteria established in the Phase I of the study. The specific categories addressed included:

- Market Demand and Analysis
- Development and Public Investment Requirements
- Evaluation of Potential for Success
- Feasibility Criteria Summary
- Feasibility Conclusion

The detailed feasibility analysis portion of the study concluded that six of the seven businesses of transportation candidates were infeasible. These candidates and their respective feasibility analyses are summarized below:

Eastern Washington Export Consolidation and Shipment Center

This candidate use was determined to be infeasible based on the projected cost of consolidation and a lack of demand for service.

Domestic Automobile Distribution Center

This candidate use was determined to be infeasible due to the increase in cost of automobile handling combined with the lack of backhaul of import automobiles that would likely increase this cost.

Rail Equipment/Empty Container Center

This candidate was determined to be infeasible due to the lack of demand. Ports and railroads appear to have the capability to develop adequate storage facilities.

Rail Servicing Center and/or National Strategic Trade Corridor

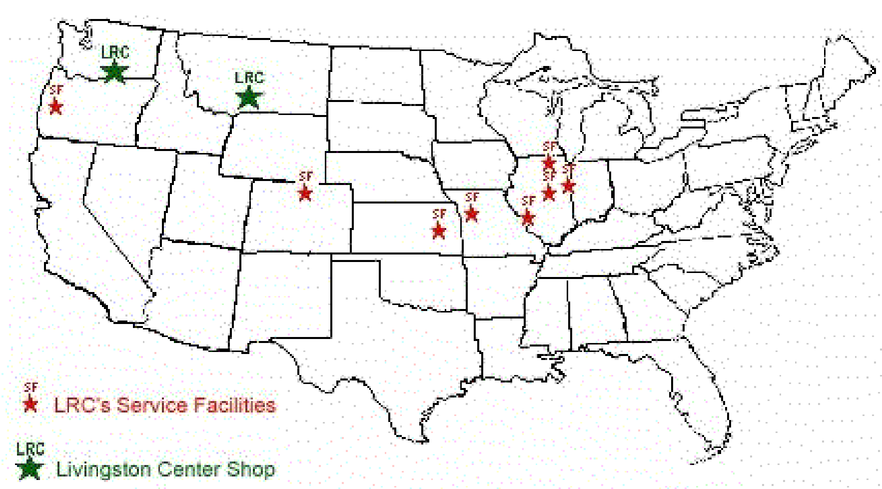
This candidate was determined to be not feasible due to a lack of demand. Essentially, this is a candidate is driven by route geography. This geography is already in place for the rail transportation mode and is not subject to change without significant external factors.

Transportation Equipment Control and Tracking Center

Tracking systems are already used by the trucking, rail, and barging industries, among others. Although there are facilities already transferred to the Port that can house such a tracking center, this would be considered more of a space rental option. It was determined during the Phase II evaluation that this candidate related more to immediate recruiting efforts of the port for a given building and did not adapt to a need for inclusion in long-range planning.

The only business of transportation found to be feasible in this detailed evaluation was the **Rail Equipment Repair and Rehabilitation Center**. The market analysis indicated that slow, steady growth of the railroad freight and passenger industry would continue to provide opportunities to expand the rail equipment maintenance business already operated on Port properties by Livingston Rebuild Center (LRC). However, the highly competitive marketplace will continue to be a challenge. Beyond the existing repair business, LRC has an opportunity to expand into manufacturing and fabrication of rail equipment. This candidate was evaluated as part of the coordinated development program, discussed in Section 4.0.

Figure 3. Location of LRC Facilities



Source: BST Associates, 1999

This candidate concept was found to be a feasible option under both the business of transportation and industrial development categories. This is due in part to the merging of rail equipment manufacturing and fabrication (an industrial operation) with the business of transportation component. The current LRC rail equipment center is located in facilities that were transferred from the Hanford Reservation to the Port of Benton in early 1999.

5.3 Study Findings: Business of Transportation

With the exception of certain niche service areas, there is little or no demand for businesses involved in transportation facilities or services, referred to as "businesses of Transportation," in the Tri-Cities area.

Due to lack of market demand at this time or in the near planning future, six of the seven business of transportation candidates were eliminated. However, transportation infrastructure services adequate for meeting industry demand continue to be necessary within the region. Operation of installations such as the BNSF Pasco yard for manifest trains remains a strong economic driver. Relatively small additional support opportunities may have potential based on actual demand. However, large-scale intermodal operations are not anticipated for the Tri-Cities area.

The only viable candidate to be identified within the business of transportation was the rail equipment and rehabilitation center.

At the end of Phase II: Detailed Feasibility, this candidate was identified as having development opportunities and was moved into the industrial development component for the Coordinated Program Analysis

Retention of the remaining 108-mile Reservation rail system along with surplus Hanford Reservation lands is justified as a contingency to meet yet-to-evolve demands for additional rail routes and transportation service. Other acreage and infrastructure within the Tri-Cities area could also meet those needs

Although there were no specific demands identified for use of this rail system which justified inclusion in a coordinated development program, the relatively low cost of preserving this line and several categories of yet-to-evolve needs make its retention an important consideration. As a general principle, the State of Washington appears to favor retention of all existing rail lines or an ability to reopen lines temporarily closed. If a long-term demand for a major intermodal or rail services facility evolved, the Hanford Reservation and other sites in the Tri-Cities area are highly suited to accommodate that demand. Sites adjacent to a railroad mainline will be necessary for some types of services.

6. Strategic Transportation Issues

The inclusion of transportation as a key component of this feasibility study originated with the Port of Benton's "Alliance Washington, Vision 2050." This Plan has played an essential role in recent transfers of Hanford lands and facilities that include the 9-mile rail segment connecting to Burlington Northern Santa Fe and Union Pacific railroad mainlines. This comprehensive vision recognizes the need to define shorter-term development and advocates preservation of long-term opportunities.

The Port's vision (as expressed in its Plan) is designed on the presumption that development and business growth will be driven by the location of the Hanford properties and facilities in relation to the state's transportation network and the 124-mile Hanford Reservation Railroad. Supporters of the Plan also expressed a belief that the Reservation rail system and the opportunity to develop a mainline route through the Reservation would represent the principal drivers of any development on those properties.

In addition, the Plan identified regional strategic transportation assets where the Hanford Reservation facilities, as well as surrounding assets of south central Washington, could possibly be used at a future time. These assets include the regional rail and highway systems, and adjacent lands to those systems, that would be available for meeting possible future needs of Washington seaports and regional segments of capacity-driven, east-west rail routes.

6.1 Inland Operational Support to Washington Seaports

In order to evaluate the need for an inland support center and to site it within the Tri-Cities area, an assessment was completed of the current and future needs, and market drivers, of the ports of Seattle and Tacoma. The evaluation was first focused on existing onsite seaport operations and identifying market demand for offsite services. In examining immediate demand for offsite services, the analysis reviewed two typical inland support functions that were evaluated as business development candidates in Phase I and II of the study. Finally, the evaluation considered long-term port needs at the 5-to-10-year horizon, and 10-to-20-year and beyond horizon.

6.1.1 Existing Port Operations

The ports of Seattle and Tacoma are anticipated to continue as conduits for import containers that move from ship to rail, and east to the mid-west and east coast. Of equal importance, but with smaller volumes and less time sensitivity, are the import containers that are destined for relatively small regional populations via truck. Export containers moving west bound are less time sensitive, but especially valuable to Washington exporters and must be handled efficiently to retain business.

To efficiently and cost-effectively operate the intermodal-based seaports of Seattle and Tacoma, the ports must have adequate container terminals, rail loading yards, rail and roadway access, and en route rail capacity. In recent years, the biggest challenge has been to overcome rail system deficiencies. As the volumes of containers double in 20 years, the need for rail system efficiency will undoubtedly increase. In addition, the increasing volumes will test container-handling processes.

However, planners at the ports believe that the system used today, with planned improvements, is sufficient to handle container operations for at least the next 10 to 20 years. A lack of need for offsite facilities to support port operations in the immediate future was verified in the Detailed Feasibility portion of the study. Two “business of transportation” candidates that could provide support to the seaports (Eastern Washington Export Consolidation and Shipment Center and Rail Equipment/Empty Container Center) were determined to be infeasible due to lack of demand.

6.1.2 Future Port Operations, Five to 10 Years

The analysis evaluated long-term projections for service demands at the ports of Tacoma and Seattle, the ability of the Ports to meet those demands onsite, and the need for inland facilities at the Hanford Reservation or at other south central Washington sites. The long-term analysis evaluated:

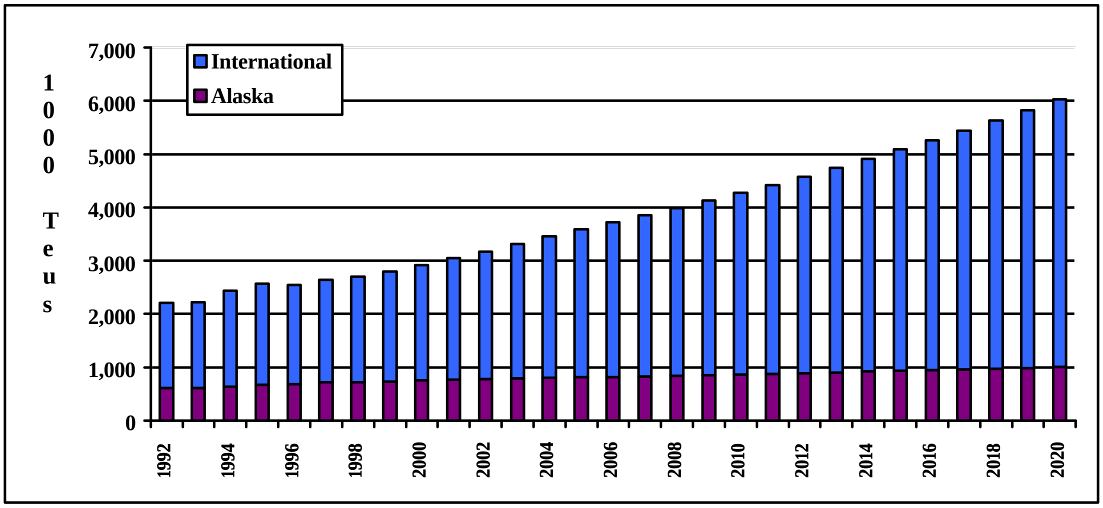
- Service demands for doubling of container volumes in 20 years and the potential for even higher rates of intermodal growth.
- Ability of the ports to meet demands for terminal space and rail system efficiencies onsite in the future.
- The need for inland sites based upon the “Agile Port” concept.

Based upon a biannual 20-year cargo forecast for container growth in the Puget Sound area, the 2.8 million 20-foot equivalent units (teu’s) in 1999 will rise to 6 million teu’s in 2020. The largest segment of growth will be in intermodal operations using large ships, and increased volumes of containers requiring timely movement inland. Although the largest ships and volumes are likely be attracted to southern California, growth of intermodal traffic in the Pacific Northwest could be even higher than forecasted.

Increasing productivity per acre of terminal space can be expected from improved container handling, storage systems, and rail operations. These factors combined with currently unused capacities of some terminals and planned new terminals are anticipated to meet space demands for the 5 to 10 year period.

The primary challenges faced by the ports in this growth period include timely loading and clearing of containers from the shipping terminals and facilitating on-time inland deliveries to the mid-west and east coast by rail. The biggest challenge has been to overcome rail system deficiencies. Current and planned improvements at the ports will play important roles in overcoming potential future limitations. Planners from the ports believe that the rail system, with planned improvements, will be adequate for forecasted growth.

Figure 4. Predicted Container Volumes through the Ports of Seattle and Tacoma



Source: BST Associates, 1999

Others in the port industry are anticipating a more dramatic need for inland capacity during the next 5 to 10 years. "Agile Port" is a concept being considered by the Federal Maritime Administration to solve waterside terminal space, and train loading and dispatch issues. It was originally conceived as a means to accommodate the anticipated 200 to 300 percent increase of container imports through the ports of Long Beach and Los Angeles over the next 20 years using *ships that are 2 to 2-1/2 times larger*. Planners have undertaken the challenge to develop the means to cost-effectively keep the ports from becoming overwhelmed and assure the smooth intermodal transfer of containers to truck and rail. The concept would utilize a "rail pipeline" to an inland site where trains and trucks would be dispatched. Assuming that existing rail system improvements are forthcoming, port planners in Tacoma and Seattle and the study focus group do not believe there is a need for an "Agile Port" system in the Pacific Northwest for at least the next 10 to 20 years, if ever.

6.1.3 Future Port Operations, 10 to 20 Years and Beyond

Although the "Agile Port" concept was developed to look beyond the immediate future, certainly in the 10- to 20-year range and beyond, the concept has received relatively little attention or acceptance by the original target ports of Los Angeles and Long Beach. There has been no consensus among the port industry as to the feasibility of this inland support center concept for meeting future volume growth. But the Federal Maritime Administration funded a series of studies that have attempted to address the full chain of handling containers from the large ships to port and the transportation systems' abilities to move them inland. The concept was recently given the name "Agile Port" and presented to many seaport staffs as a potential generic solution to meet volume growth.

"Agile Port" as a long-term solution to growing Pacific Northwest container volumes has not received the support of the ports of Tacoma and Seattle. The need for any offsite operation, especially one as far inland as the Tri-Cities area, is believed to be unnecessary, assuming onsite terminal and rail system improvements are successfully completed. But, long-term terminal adequacy and rail operating efficiencies are not certain. Current and planned improvements at the ports such as enlarged and additional terminal space, additional near-dock rail storage and staging, special arrival and departure tracks, direct dispatch to mainlines, and coordinated operating procedures must become a reality to overcome potential future limitations. These potential long-term limitations along with uncertainties of the need for an “Agile Port” inland site were found to be compelling reasons for retaining options for future development, even if not currently justified.

6.2 Study Findings: Inland Support

A portion of the study focused on analyzing the possibility that Hanford lands and assets could provide operational support to the seaports of Seattle and Tacoma. The findings of the Inland Operational Support to Washington Seaports evaluation are summarized below.

Currently, there is a lack of demand for development of inland transportation facilities to support Washington seaports. This is verified by two business opportunities for transportation facilities or services relating to inland support of Washington seaports that were found to be infeasible at this time.

Washington’s two intermodal seaports have not identified inland operations as a specific need but have indicated a willingness to consider possible future needs in their planning processes. The current planning emphasis is on resolving rail operations and efficient movements of intermodal rail through the state. This prompted the study to evaluate two potential inland rail facilities as potential new businesses of transportation: (1) consolidation of eastern Washington export containers for rail movement to the Ports of Tacoma and Seattle; and (2) storage/staging of empty double-stack cars and containers for the two ports. Neither option was found to be feasible in Phase II evaluations based upon lack of current demand.

Although future demand for increased Washington seaport capacity will be driven by forecasted increases in ship sizes and intermodal container volumes, the largest ships and volumes will be experienced at the ports of Long Beach and Los Angeles, which will continue to dominate the intermodal marketplace. The need for an inland site to meet extraordinary demands of the largest ships and volumes is not anticipated at this time.

Currently the ports of Seattle and Tacoma handle approximately 20 percent of the west coast containers. However, there is no indication that the current favoring of southern California ports for the biggest ships and largest regional and intermodal volumes will change. Regional population and proximity to “sunbelt” population areas nationwide, as well as highly competitive rail connections, is likely to continue to drive that market to southern California. The challenge of handling dramatically high volumes of intermodal containers will likely follow the very largest ships to southern California leaving the Pacific Northwest a chance to meet growth with more conventional means.

Although Puget Sound containerized cargoes are forecasted to grow from 2.8 million, 20-foot equivalent units (teu's) to 6 million teu's over the next 20 years, unused terminal capacity and planned expansions are anticipated to be adequate for accommodating that growth within the ports of Seattle and Tacoma. The need for an inland site to provide additional terminal space is not anticipated at this time.

Increasing productivity per acre of terminal space can be expected from improved container handling, storage systems, and rail operations. These factors combined with current unused capacities of some terminals and planned new terminals are anticipated to meet space demands over the 20-year period. Unless unanticipated space limitations materialize, neither close-by or inland terminal space will be needed.

The ports of Seattle and Tacoma use highly productive on-dock intermodal yard loading systems, and are developing additional intermodal rail facilities, rail storage/staging facilities and arrival/departure trackage to meet the long-term needs of rail within the Puget Sound corridor. Successful development of new rail systems and operational improvements are anticipated to resolve current deficiencies in rail operations and provide the means to meet forecasted intermodal growth. The need for an inland site to re-handle containers at an inland rail site is not anticipated at this time.

Grounding of containers and on-dock intermodal rail loading and unloading operations have reduced space needs and added to productivity. Current rail operating deficiencies outside of the on-dock load/unload operations must be resolved to prevent serious future limitations to rail operations. On-dock operations include availability of empty cars, dispatching loaded trains, clearing loaded trains from on-dock rail yards, and arriving trains from the mainline railroad systems. Planned and underway improvements at the ports, such as additional near-dock rail storage and staging, special arrival and departure tracks, direct dispatch to Class 1 railroads, and coordinated operating procedures, will play important roles in overcoming potential future limitations. Progress in developing a Puget Sound rail corridor (i.e., the "FAST Corridor") would incrementally resolve many off-port deficiencies.

The ports of Seattle and Tacoma are anticipated to meet onsite space and rail load/unload needs and resolve current deficiencies in rail operations to meet forecasted intermodal growth. However, resolution of arrival, departure, dispatch, and en route rail service and car availability is uncertain enough to justify monitoring inland support concepts, factoring them into planning processes and retaining siting options for facilities when justified.

The analysis concluded that the remaining challenges for meeting large intermodal container volume growth are the same rail operating deficiencies plaguing the system today. Long-term challenges for the ports include the availability of empty double-stack cars; dispatching of loaded trains; and clearing loaded trains from on-dock rail yards and arriving trains from the mainline railroads. They represent uncertainties for meeting future rail needs. Accordingly, it would be prudent to consider contingency means to meet growth demands.

Applicability of the "Agile Port" (i.e., Federal Maritime Administration alternative approach for meeting the impact of future mega-ship operations at seaports using inland sites) concept for Pacific Northwest Seaports is uncertain. A key element is development of a "rail-pipeline" from the ports to an inland site. This high-efficiency rail operation inland would resolve current deficiencies in rail operations and allow the ports to meet growth without re-handling at an inland site. Although applicability is uncertain, and a central Washington siting of such a facility is unlikely, future refinement of the concept requires continued evaluation.

According to representatives of ports in southern California, the "Agile Port" concept as a generic plan for solving future growth challenges is not widely accepted. The future needs of Pacific Northwest ports have special challenges pertaining to onsite and through-rail capacities making the "Agile Port" concept an even more uncertain approach. A key conclusion relating to applicability of the "Agile Port" concept is that the development of a "rail-pipeline" from Seattle and Tacoma to an inland site may resolve problems that have already been identified. If the trains can move into and out of the Puget Sound area with higher levels of efficiency, the need to re-handle at an inland location would not be necessary.

Presently, there is no need to invest in infrastructure or specifically plan for a major inland support facility on Hanford properties or elsewhere in south central Washington. However, there are uncertainties surrounding the ports' abilities to meet growth demands, the "Agile Port" concept, and long-term inland support demands that cannot be defined today. These provide a justification for retaining siting options with delayed investments or in making relatively small investments for meeting a yet-to-be-determined future need.

The analysis found that the need for an inland operational support system for the ports of Seattle and Portland was not likely over the next 10 to 20 years. However, the ability of the ports to overcome several rail operating deficiencies was uncertain enough to justify monitoring the concept and off-site needs in port planning processes, and to retain options for inland facilities.

Although relatively modest holding costs are anticipated, acquisition and holding of a "growth contingency" area on the Reservation for a future large rail facility and long term industrial development sites, by the Port of Benton may require assistance from other local or State entities.

The analysis indicates that the industrial development program will likely require public investments that will not produce a direct financial return, and the Port of Benton is reluctant to acquire additional excess Hanford Reservation Lands without new sources of revenue to support development. The holding costs for a growth contingency area corridor north into the Reservation along existing roadway and rail routes and totaling approximately 1,800 acres are not anticipated to be high. This area would not only retain a contingent rail site but also provide the means to meet a yet-to-evolve future industrial need. The Port of Benton or a local public joint venture group would be an appropriate holding agency. Grants and other economic development support from the state might be required to fund this investment.

6.3 East-West Rail Route Improvements

The ports of Seattle and Tacoma transport a majority of their import containers, approximately 70 percent, by rail for immediate movement to the mid-west and east coast. In other words, the ports are conduits for import containers that are intended to move efficiently from ship to rail and *through* the state en route to the mid-west and east coast. To remain competitive, the ports must maintain efficient and cost-effective east-west rail connections to the mid-west and east coast.

The Port of Benton has an interest in supporting the railroads in meeting their long-term capacity needs. By ensuring future rail capacity for the ports, industrial development may also benefit within the Port of Benton and Tri-Cities region. For this reason, an evaluation of the current and future capacities, as well as capital costs, on each of the three east-west rail routes was conducted. The three routes are Stevens Pass, Stampede Pass, and Columbia River Gorge. A map of these routes and locations of recommended improvements are provided on the following page.

Rail routes evaluated for capacity issues are those owned and operated by the BNSF Railway. These corridors represent the state's primary through-rail service and serve a substantial amount of the state's commerce.

In the analysis of the east-west rail strategic transportation opportunities, three components were evaluated: existing capacity, future capacity needs, and alternatives for meeting those capacity needs. To determine current capacity, the 1999 American Railway Engineering and Maintenance of Way Association formula was used. The general factors used in these analyses include average trains per day, peak trains per day, length of constraining segment of track (i.e., tunnel), dispatch efficiency, average travel time, and maximum gross headway.

The analysis determined that the current practical capacity (maximum number of trains per day) of each route are:

- Stevens Pass 24
- Stampede Pass 12
- Columbia River Gorge 38

Plate 3: East-West Rail Route Improvements

Future demand on these above routes was then calculated based upon two to three percent annual growth. Assumptions pertaining to growth were made that parallel the predicted growth in the Gross National Product and Industrial Products Index (i.e., information used by market analysts for the railroads). An assumption was also made that there would be no changes in train operations or capital improvements that affect capacity. These calculations were made to estimate the year the actual number of trains per day exceeded the practical capacity. For each route, the approximate year in which practical capacity is exceeded is:

Table 3. Train Capacity of Individual E-W Routes

	Maximum Capacity	Current Demand	Date Capacity will be Exceeded
Stevens Pass	24	21	2005
Stampede Pass	12	7	2025
Columbia River Gorge	38	35	2005

Noteworthy was the fact that the apparent adequacy of Stampede Pass until 2025 is not a fair basis for judging the ability of the railroad to meet east-west growth demands. The analysis reflects the current use of that route which is both limited by tunnel dimensions that do not allow double-stack rail cars and adverse grades both east and west bound. For all intermodal and some grain train operations, the route is currently at its maximum capacity.

Based on the need for future growth, alternatives in capital improvements were assessed. The railroad, as a practice, would consider capital improvements as a last resort for addressing line capacity. Changes in operating methods or procedures are first priority. Route capital improvements that could provide increments of increased capacity were found to be:

- Improve the signal system over Stampede Pass and through Yakima Valley
- Improve the Stampede Pass Tunnel
- Build a new Stampede Pass Tunnel, including signal system improvements over the pass
- Restore the Ellensburg-Lind Route

Each of these options represent candidate route improvements that increase capacity. Combinations of these alternatives and their estimated costs are:

- Improving signal systems on the current Stampede route, including Yakima Valley, would create new capacity at a cost of $228 million;
- Modifying the existing Stampede Pass tunnel to accommodate double-stack cars at a cost of $30 million;
- Building a new Stampede Pass Tunnel at a lower elevation, including improved signal system over the pass, would reduce approach grades and accommodate double-stack cars at a cost of $295 million;

- Changing operating methods to predominantly move one-way is a no-cost candidate but must include at least a Stampede Tunnel improvement and must be used if Ellensburg-Lind is reopened;
- Restoring Ellensburg-Lind would increase capacity eastbound-only at a cost of either $225 million or $343 million depending on capacity objectives;
- Combination of new Stampede Pass tunnel and improving signal systems on the current Stampede route, including Yakima Valley, at a cost of $419 million;
- Combination of new Stampede Pass tunnel, including improved signal systems over the pass, and restoring Ellensburg-Lind at a cost of $638 million.

These are large investments, but not atypical for meeting long-term capacity needs of similar railroads.

6.3.1 Study Findings: East-West Rail Route Improvements

The findings of the East-West Rail Route Improvements analysis are summarized below.

Maintaining adequate east-west rail capacity on the state's primary through-rail service routes is critical for assuring future growth of Washington's two primary seaports. In addition, maintaining adequate capacity for the overlapping use of those routes by regional freights and passengers is critical to the state's overall economy.

Rail routes evaluated for capacity issues are those owned and operated by the BNSF Railway. They represent the state's primary through-rail service as well as serving a substantial amount of the state's commerce. The implications of finding a statewide interest in increasing capacities on these routes is not defined. There is no intent to delve into private business considerations of the railroad.

Rail system capacity for east-west rail routes is limited but train volumes are currently below those limits on all three major routes: Stevens Pass, Stampede Pass and Columbia Gorge.

Current maximum capacities for Stevens, Stampede, and Columbia Gorge routes are 24, 12 and 38 trains per day, respectfully. Current demand is for 21, 7 and 35 trains per day respectfully.

Train volumes will reach capacity limits on two major east-west rail routes, Stevens Pass and Columbia Gorge, by 2005. Stampede Pass, the third major route, has adequate capacity through 2025 <u>as currently utilized</u> (i.e., with adverse grades and not able to accommodate double stack trains; essentially the route is seriously limited already).

Growth forecasts provided informally by the railroad indicate annual compounded growth rates of two percent for general freight and grain trains, and three percent for intermodal through-trains. Assuming the railroad does not change its operating methods and procedures to temporarily add capacity or make some permanent route improvements by 2005, rail service will suffer, and there is a potential for similar negative impacts to state businesses. Limitations on the use of Stampede Pass, to include adverse grades and a tunnel that will not accommodate double stack trains, make it essentially at capacity relative to east-west rail growth.

Route capacities can be increased by making one or more changes in operating methods or procedures or by improving the rail route itself. Changes in operating methods or procedures are generally favored over high capital cost route improvements by the railroads but may represent only interim solutions to capacity needs.

The railroad uses established business criteria for addressing and meeting additional capacity needs. In descending order of priority, they are: accurately identifying constraining segments, adding necessary locomotive power, adjusting train schedules, changing operating practice, and lastly, making a capital investment. Accordingly, it can be expected that a need for route improvements, based on verifiable demand, will have to exist before private investment will occur.

While staging some portions of development over a number of years to meet increments of capacity demand, it appears that an effective program for meeting long-term capacity requirements after 2005 would include:

- Improving the signal system over Stampede Pass
- Constructing a new Stampede Pass Tunnel
- Restoring the Ellensburg-Lind Route and operating a one-way route system (Stevens Pass - Stampede Pass)

To make significant capacity improvements to the rail system, an improved signal system, new Stampede Pass tunnel, and restoration of the Ellensburg to Lind Route along with a one-way route system appears to be the best option available, based on the limited evaluation to date. No individual project or combination of other projects appears to produce the capacity improvements required for a 20-year planning horizon. This project would change the way trains run across the state, and with one-way traffic would easily double mainline capacity. A system with increased capacity, flatter grade, faster running times, and shorter routes, could provide greater competition with southern California for important intermodal containers.

Reopening a portion of the Ellensburg-Lind Route and building a connection to Hanford Reservation Rail System for a new mainline route to Pasco does not increase overall system capacity. In fact, it represents a poor rail alternative to the existing route. Developing that new route only for the express purpose of bypassing the Yakima Valley to eliminate at-grade crossing impacts is neither cost effective nor appealing to train operators.

This alternative was considered for increasing capacity but discarded. This option was then considered for resolving at-grade crossing impacts in the Yakima Valley, Kennewick, and Pasco by developing a rail bypass for that segment. At grade separation requests, tabulated during completion of the Eastern Washington Freight Mobility Study, do not mandate that all separations would be funded. Additionally, grade-separation development would likely be a long-term objective rather than a single, very expensive rail bypass that would cost $281 million.

To meet future East-West rail capacity needs, route options must be preserved and private railroad capital improvements encouraged and supported. Included should be preservation of the Ellensburg-Lind Route by maintaining the State Parks-DOT property transfer option for developing a route franchise for mainline rail at some future date.

Future east-west rail route capacities appear to be a valid concern to be addressed in more detail. Evaluation should include consideration of the need to form public-private joint-efforts to resolve capacity issues, and whether or not there is a legitimate public financial investment interest. In the meantime, it would be prudent for the State of Washington to move to further extend legislation that will leave the Ellensburg-Lind reopening a choice for the future.

7. Conclusions

It is in the best interest of the Port of Benton:

1. To recognize that the general transportation infrastructure available on Hanford Reservation lands is not a principal driver of major manufacturing, commodity distribution, or development. It should not continue to be pursued as a primary development objective.

2. To recognize that the presence of rail infrastructure in the Tri-Cities area, to include two Class 1 railroad mainlines, is not, in itself, a principal driver for development of a major "Intermodal Center." It should not continue to be pursued as a primary development objective.

3. To retain and facilitate operation of the current trackage connecting the Burlington Northern Santa Fe and Union Pacific mainlines at Kennewick to the Port of Benton Rail (former Reservation Rail) to support industrial development on Port of Benton, City of Richland and "growth contingency" Hanford Reservation lands.

4. To acquire a "growth contingency" rail corridor on Hanford Reservation lands by retaining the 108-mile Reservation rail system within and beyond the primary study area for supporting Low Compatibility Uses and yet-to-evolve demands for rail routes and transportation services.

5. To adopt a coordinated industrial development program that includes Energy/Energy Systems, Environmental, Advanced Materials, Information/Communications, Transportation Equipment Manufacturing, Low Compatibility Uses, Wholesale/Distribution and Miscellaneous Manufacturing as its principal development program through 2020.

6. To seek formation of a public entity joint venture, which includes a partnership of appropriate general purpose governments, for implementing the development program.

7. To limit the recruiting and siting of all program categories, with the exception of the Low Compatibility Uses, to lands already acquired by the Port of Benton, along with approximately 400 acres of additional lands from the adjacent City of Richland's Horn Rapids Industrial Park.

8. To acquire 2,820 acres of appropriately sited Hanford Reservation lands north of the Horn Rapids Rail Center for the Low Compatibility Uses category of the development program and a "growth contingency" corridor for yet-to-evolve industrial, rail and inland support of Washington Seaports demands.

It is in the best interest of the State of Washington:

1. To assist the Port of Benton in acquiring and holding 2,820 acres of surplus Hanford Reservation properties and the remaining 108 miles of Reservation Rail System. This land would accommodate the Low Compatibility Uses category of the development program and a "growth contingency" corridor for yet-to-evolve industrial, rail and inland support of Washington Seaports demands.

2. To recognize that maintaining adequate east-west rail capacity on the state's primary through-rail service routes is critical for assuring future growth of Washington's two primary seaports and the overlapping use of those routes by regional freight and passengers.

3. To recognize that train volumes will, using operating methods and procedures of today, reach capacity-limits on two major East-West Rail Routes, Stevens Pass, and Columbia Gorge, by 2005. In addition, it is in the state's best interest to recognize that Stampede Pass, the third major route, has already reached capacity. Aggressive changes in operating methods and/or procedures by the railroad could provide some additional capacity without capital improvements and extend capacity life.

4. To recognize that staging some portions of the following capital improvements over a number of years to meet increments of capacity demand is the most certain program for meeting long-term capacity requirements after 2005:

   - Improving signal system over Stampede Pass
   - Constructing a new Stampede Pass Tunnel
   - Restoring Ellensburg-Lind Route and operating a one-way route system (Stevens Pass - Stampede Pass)

5. To preserve options for increasing East-West Rail Route capacity, and to encourage and support private railroad efforts to undertake needed improvements. Included should be preservation of the Ellensburg-Lind Route by maintaining the State Parks-DOT property transfer option for developing a route franchise for mainline rail at some future date.

6. To consider increasing State of Washington-BNSF Railway cooperative efforts already underway for high speed and commuter rail issues, to evaluate East-West Rail Route capacity improvement strategies.

APPENDIX A - SUMMARY OF GENERATED REPORTS AND DOCUMENTS

PHASE I: PRELIMINARY FEASIBILITY REPORT

The primary purpose of this report was to summarize the initial screening of both the industrial development and business of transportation candidates. Included in this report were the following appendices:

Appendix I: Process Flow Diagram
This appendix shows the flow diagram, project management and coordination for all phases of the study.

Appendix II: Study Schedule
This appendix contains the schedule for all phases of the study.

Appendix III: Stakeholder Advisory Committee Meeting Summaries
This appendix provides a summary of the July 13, 1999 and August 12, 1999 meetings.

Appendix IV: Asset Characterization Maps
This appendix contains a general and site specific maps that show the properties and facilities originally used in the development portion of the study. Note: the detailed asset map has been subsequently altered and a final is located in Phase III.

Appendix V: Technical Memorandum No. 1: Feasibility Criteria
This technical memorandum documents the preliminary criteria that the study team used in evaluating economic development strategies.

Appendix VI: Screening Document
This report details the screening, rating, and ranking methodologies used in the initial evaluation of both industrial development and business of transportation categories.

PHASE II: DETAILED FEASIBILITY REPORT

This primary focus of this phase was the evaluation of market drivers in relation to development of the Port of Benton/ Hanford Assets. Included in this report were the following appendices:

Appendix I: Stakeholder Advisory Committee Meeting Summaries
This appendix provides a summary of the September 8, 1999 and October 20, 1999 meetings.

Appendix II: Technical Memorandum 2: Inland Port and Intermodal Center Criteria
This technical memorandum defined and developed terms that would be applicable to "intermodal centers" and "inland ports." The memorandum also provided criteria for

evaluating the potential to develop an intermodal facility on the Port of Benton assets. Included in this memorandum is a summary of focused surveys. A variety of inland ports and intermodal centers were contacted. These surveys helped identify individual objectives and drivers of each facility. These were then used to develop the criteria.

Appendix III: Feasibility Summaries: Industrial Development
The purpose of this report was to document the detailed feasibility component of industrial development. The report: refined industry categories, described the industrial siting, prepared projections of growth, estimated public investments, and re-evaluated the feasibility of selected target opportunities.

Appendix IV: Feasibility Summaries: Business of Transportation
This report summarizes the process and results of the detailed feasibility component of the business of transportation. The analysis looked each candidate in terms of demand, public investment requirements, and an evaluation of success

PHASE III: COORDINATED PROGRAM

The purpose of this report was to document the findings of Phase III. This included a coordinated development program evaluation, analysis of strategic transportation issues, finalized conceptual site planning, and overall study findings. Included in this report were the following appendices:

Appendix I: Stakeholder Advisory Committee Meeting Summary
This appendix provides a summary of the December 10, 1999 meetings.

Appendix II: Public Investments and Returns
This report analyzes the public investments and returns expected from development of Hanford assets over a 20 year period. Employee growth, infrastructure improvements, and a phased development approach are all discussed.

Appendix III: Technical Memorandum 3- Strategic Transportation Issues
This memorandum evaluates two strategic regional transportation issues: Inland Support of Washington Seaports and East-West Rail Route Improvements. The current and future market drivers of these issues and how they pertain to the Hanford site is discussed.

APPENDIX B - LIST OF STUDY PARTICIPANTS

Oversight Panel

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Paula Hammond, P.E., Assistant Secretary, WSDOT Highways and Local Programs Service Center
Peter McMillin, Director, Business Development, Washington State Dept. of Community, Trade & Economic Development
Leonard Pittman, Region Administrator, South Central WSDOT Office

Stakeholder Advisory Committee

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Nancy Aldrich, Council Member, City of West Richland
Al Anderson, Deputy Director, Port of Moses Lake
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Dave Bailey, Executive Manager, Port of Moses Lake
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